

## OBJECT OF THE INVENTION

[0001] The present specification refers to a Patent application regarding an automatic roller wringer for mops and the like which mops can be replaced by floor scrubbing devices, butts of the handle, etc., the purpose of which is to facilitate the significant reduction of the effort made by those persons who perform the job of wringing the mop for cleaning floors, or of any similar element, automatically performing the wringing of the mop or the like located on the lower part of the mop handle.

## FIELD OF THE INVENTION

[0002] This invention is applicable within the industry dedicated to the manufacture of domestic and industrial cleaning apparatuses, especially within the industry dedicated to the manufacture of automatic wringers or similar apparatuses.

## BACKGROUND OF THE INVENTION

[0003] The applicant knows of the existence of several apparatuses, devices or elements applicable as wringers which are provided with mechanical actuation elements, operated by the user or users of these elements, configured from clamps, rollers or coupling elements which, directly operated by the user by means of a crank or the like, achieve removing the water contained by the mops or the like.

[0004] The applicant likewise knows of the current existence of a plurality of supports having a similar application, provided with mops or the like whose wringing operation is manually performed by introducing the end of the handle of the floor scrubbing device or the like into frustoconical shaped inverted baskets which, by means of twisting movements, removes the liquid contained in the mop.

[0005] The applicant knows of the current existence of some carts incorporating the body of a recipient on their structure, on which recipient an electric-power supplied wringer is assembled, the feed of which originates from a battery or an accumulator, the body of the wringer being placed on the surface of the recipient bucket, which in turn is provided with a second compartment with clean water, falling to the inside of the compartment adjacent to the clean water container, which may or may not contain a cleaning product, a second compartment on the inside of which the water from the wringing operation slowly falls into.

[0006] It must be indicated that these wringing elements are provided with two blades located in opposing points which, when the drive motor thereof is actuated, generate a transportation movement in a coinciding direction, generating the wringing of the mop or the like previously placed between the two movable parts, a movement which automatically stops when the parts generating the mobilization of both wringing areas has carried out its cycle, returning to the standstill position, i.e. separating from one another and allowing the removal of the mop or butt of the handle through the upper part.

[0007] It has been shown that these parts which move like blades or the like, generating an approaching movement, do not definitively wring the mop or the like, as a result of which the user must actuate them on several occasions, on one hand leading to a loss of time, as well as a large use of electric power accumulated in the battery.

[0008] In view of this drawback, it would be necessary to provide an automatic wringer with incorporated internal transversally arranged rollers in replacement of the blades, rollers which, provided with rotating capacity as well as movement, suitably achieve removing the water existing in the mop or the like.

[0009] However, the applicant does not know of the current existence of an invention provided with the features indicated above as suitable.

#### DESCRIPTION OF THE INVENTION

[0010] The automatic roller wringer for mops and the like proposed by the invention is a novelty element itself, providing within its context all those features defined as solutions to the evident drawbacks in this matter.

[0011] More specifically, the automatic roller wringer for mops and the like object of the invention is constituted of a heavy-duty bucket provided with wheels which facilitate transporting it, on which bucket the automatic roller wringer for mops and the like is supported, internally incorporating different mechanisms which achieve that it acts automatically, without needing to have an external power source.

[0012] On the inside of the casing forming the wringer, one or two motors has been provided which are fed by an electric battery arranged inside the casing, which battery is fed until it is saturated by means of the use of a conventional battery charger which is connected to the electric system by one of its ends, and the other one of the ends existing in the charger is incorporated to a base located in the rear part of the casing constituting the wringer, thereby feeding the battery and performing the relevant charging with this operation.

[0013] A main switch which starts up the operation or stops the actuation of the wringer has been provided on the outer area of the structure of the wringer, which switch is provided with an automatic thermal protection element.

[0014] A projection is provided on the side area of the front face of the wringer, on which projection a switch is incorporated which is operated by the mop handle when it is placed along it in a downward direction, the actuation of this switch generating the start-up of the entire

mechanism, achieving that one of the rollers begins rotating and the opposite roller moves while it is rotating until it is adjacent to the fixed rotating roller, which, with the pressure generated between both rollers, leads to the complete wringing of the mop.

#### DESCRIPTION OF THE DRAWINGS

[0015] To complement the description that is being made and for the purpose to aid a better understanding of the features of the invention, two sheets of drawings are attached to the present specification as an integral part thereof which, with an illustrative and non-limiting character, show the following:

[0016] FIG. 1 shows a perspective view from the front, upper area of the invention regarding an automatic roller wringer for mops and the like.

[0017] FIG. 2 shows a rear elevational view of the object shown in FIG. 1.

[0018] FIG. 3 shows a block diagram of the elements incorporated on the inside of the object of the invention, shown in FIGS. 1 and 2.

[0019] FIG. 4 shows a perspective view of the automatic roller wringer automatic roller wringer of FIG. 1 having the exterior panel of the casing removed and the main gear inverted to show an eccentric guide.

[0020] FIG. 5 shows a side elevational view of the interior of the casing of the automatic roller wringer of FIG. 1.

[0021] FIG. 6 shows a close-up elevational view of a projection of the main gear engaging the microswitch.

#### PREFERRED EMBODIMENT OF THE INVENTION

~~[0019]~~[0022] In view of these figures, and, in particular, FIG. 1, it can be seen how the automatic roller wringer for mops and the like object of the invention is constituted of an

automatic wringer comprising a casing (2), there being arranged on the lower part thereof coupling elements for arranging on a support bucket, and the front central area thereof being completely hollow, except for the existence of two transversal rollers (5) and (7), roller (5) being fixed but provided with rotational movement, whereas roller (7) is movable, shifting on two side guides (6) arranged on the inner area (4) of the casing (2), the movable roller (7) being operated and started up by means of the user's direct actuation with the end of the handle (20) of the mop or the like on an external switch (10') existing in a groove or suitable area on the right side of the upper part of the casing (2).

~~[0020]~~[0023] Referring to FIG. 4, the ~~The~~ movement of the rollers (5) and (7) is performed due to the existence of one or two main gears (12) provided with an eccentric guide (19) on the inner part, through which guide the pivots (23) of the movable arm (22) pass which make the roller (7) advance and press against the mop at the same time that the roller (5) is rotating in a upward direction, a rotation carried out for a predetermined time applicable for carrying out the entire run of the length of the mop or the like, pushing the totally wrung mop (20) out through the upper part, the roller (7) returning to its original position once the wringing has concluded. A movement of roller (7) is guided in part by lugs (25), which are disposed in the side guides (6), that couple the roller (7) to movable arms (22) on either side, at least one of which is driven by a main gear (12).

~~[0021]~~[0024] Looking at FIG. 5, the ~~The~~ arms (22) supporting the roller (7) are provided with the relevant springs (21), which results in a certain resilience of the roller (7), since it permits the latter to adapt to the different types and thicknesses of mops, butts of handles, floor scrubbing devices, etc. In addition, the main gear (12), which is driven by drive gear (15') engages a driven gear (5') to provide rotation of the fixed roller (5).

~~[0022]~~[0025] Referring to FIGS. 1-3, the ~~The~~ start-up is carried out by means of the main external switch (8) on the rear of the automatic wringer (1), but the movement is carried out by letting the mop (20) fall into the gap existing in the upper right-hand area, generating the mobilization of the push button or switch (10'), making the motor (15) rotate the time which is necessary until the microswitch ~~micro~~-(11) is actuated, and accordingly feeding the circuit during the entire run, the stop being carried out by means of a projection (13) existing on the main gears (12). Looking at FIG. 4, the motor (15) comprises a drive gear (15') that engages the main gear (12) to provide rotation during a wringing operation. Referring to FIG. 6, an area of the main gear (12) comprising the projection (13) which ~~actuate~~ actuates the microswitch ~~micro~~-(11), it being necessary to indicate that the entire wringing process is carried out in a single rotation of said main gears (12), the circuit being open and prepared for a subsequent wringing or actuation.

~~[0023]~~[0026] The automatic wringer (1) is provided on its rear part with a main switch (8), as well as a charging connection (9) for charging the battery, the circuit being open during the charge time, a circuit which is provided with a polarizing diode (17) as a security means, as well as a thermal element (16) serving as protection for the entire electric circuit.

~~[0024]~~[0027] The battery has been referenced with (14), and the internal push button with (10), which push button acts in collaboration with external push button (10'), to actuate ~~making~~ the motor (15) ~~rotate~~.

~~[0025]~~[0028] An access door (18) constituting the cover of the battery has been provided on the rear part.